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POLLUTION CONTROL HEARINGS BOARD
STATE OF WASHINGTON

CITY OF MOSES LAKE, Appellant, v. STATE OF WASHINGTON, DEPARTMENT OF ECOLOGY, Respondent.	)	PCHB No. 91-13 FINAL FINDINGS OF FACT, CONCLUSIONS OF LAW AND ORDER

THIS MATTER came on for formal hearing before the Washington State Pollution Control Hearings Board on February 13, 1992, February 18, 1992, and February 25, 1992. The city of Moses Lake appealed the Department of Ecology's denial of a variance request. The appeal concluded on March 19, 1992 with the filing of the appellant's Final Closing Arguments.

Board Member Annette S. McGee, presided. Attorney Board Member Judith A. Bendor was present during most of the hearing. Administrative Law Judge John Buckwalter was also in attendance. The proceedings were tape recorded and were recorded by court reporter Cindy J. Chatterton of Affiliated Court Reporters, Moses Lake; and Lisa Alger and Betty J. Koharski of Gene Barker and Associates, Olympia. Attorney Board Member Bendor has reviewed the portions of the record she did not attend.

Appellant appeared through Attorney James Whitaker. The Department of Ecology ("Department") was represented by Deborah L. Mull, Assistant Attorney General.

Witnesses were sworn and testified. Exhibits were admitted and examined. Written closing arguments were filed on March 6, 1992, March 12, 1992 and March 19, 1992. From the testimony recorded, exhibits examined, and argument made, the Board makes these:

FINDINGS OF FACT

I

Appellant Moses Lake, a city in Grant County, State of Washington, is a municipality that owns a number of wells that it uses for domestic and other purposes. Moses Lake constructed one of its wells, Well #14, to about 1,020 feet below the earth's surface. Exhibit A-2 contains a drawing of the well as built. A-2 also shows a screen above the Vantage formation where water enters. Similar screens are located below the Vantage. The casing extends a distance before it stops, and the remainder of the well is open hole.

The purpose of the well is to produce domestic water for the City's water system.

Well #14 is located fifteen (15) feet south of Highway 17, R/W and twelve hundred (1200) feet west of Stratford Road in Grant County.

II

The Washington State Department of Ecology ("Department") is an environmental management and regulatory agency empowered to license well drillers, grant variances from drilling specifications, and monitor the well drilling industry under the authority of Chapter 18.104 RCW and Chapter 173-160 WAC.

III

Underlying the geographical area involved in this matter, there are prehistoric layers of permeable basalt rock formed by successive lava flows. These flows have been identified by geologic experts, including the United States Geological Survey, as Columbia Basalt flows which extend west to east from the Cascade Mountains into Idaho and north to south from the

Columbia River down into Oregon. Within the Moses Lake Region, the Columbia Basalt flows have been further identified by geologic experts, including the United States Geological Survey, as consisting of the Wanapum Basalts and the Grande Ronde Basalts.

IV

The Wanapum Basalts and the Grande Ronde Basalts are two separate and distinct aquifers.

V

The Wanapum Basalts and Grande Ronde Basalts consist of a series of basalt flows. The flows generally have a broken or rubbly flow bottom, a dense flow interior which has vertical columnar fracturing and a broken or rubbly flow top.

VI

The flow top of one flow and the bottom of the flow immediately above forms what is called an interflow zone. Interflow zones that are in the basalts act as the main conduits for water travel within the basalts. To a lesser extent, water also communicates between interflow zones through the dense fractured basalt flow interiors.

VII

Four tests are identified to distinguish between separate aquifers. These are geologic information, hydrologic testing, water levels and water chemistry.

VIII

Of these four tests only hydrologic testing can provide conclusive data to identify separate and distinct aquifers on its own or determine that a single aquifer exists. Geologic information, water levels and water chemistry can provide supporting evidence, but do not provide conclusive data that can be used exclusively for the determination that separate and distinct aquifers or a single aquifer exists.

IX

Moses Lake did not provide any conclusive hydrologic testing data. The hydraulic testing data provided was inadequate because the first test had "a lot of problems with the pump", and the second test was conducted on composite wells.

X

Moses Lake provided water chemistry data. National Chem Lab was contracted with to draw the samples and arrange for their testing. National Chem Lab was not a certified lab at the time of testing. However, Columbia Testing Lab did the actual work. The wells tested were completed into multiple aquifers which would limit any conclusions that could be drawn from this data. The lack of ion balance also indicated some problems with the results.

XI

Moses Lake provided water level data showing apparently similar water levels between the Wanapum and Grande Ronde aquifers in support of their position. Some of the wells relied upon were completed in more than one aquifer. Moses Lake did not offer evidence comparing water level from a well drilled only in the Wanapum with a well drilled only in the Grande Ronde.

XII

The City of Moses Lake is situated within a geologic basin referred to as a syncline. The Grande Ronde aquifer is confined and has a relatively level surface. The Wanapum aquifer acts more as an unconfined aquifer. Thus its water level surface mimics topography by dipping down in the Moses Lake area. The geologically caused effect could explain a similarity in water level.

XIII

As one hundred to two hundred feet of separation exists between the water levels in the Wanapum and Grande Ronde aquifers throughout the Basin and a syncline is present, the water level data relied upon by Moses Lake is inconclusive.

XIV

Within the Columbia Basalt flows, a clay interbed, commonly referred to as the Vantage, usually separates the Wanapum Basalt flows from the Grande Ronde Basalt flows. This clay interbed is not totally impermeable, but where present, acts as a natural barrier to ground water movement between the Grande Ronde Basalt and the Wanapum Basalt.

XV

There also appears to be a natural aquitard in the Moses Lake area that acts as a natural barrier to ground water movement between the Wanapum Basalt flows and the Grande Ronde Basalt flows. This basalt flow with fracture filling clay has formed an aquitard with similar hydraulic tendencies as a natural barrier to ground water movement as the Vantage interbed.

XVI

Screened, perforated, or open borehole sections of a well allow the free flow of water in or out of the borehole from the basalts. These unsealed sections of a well allow water to flow within the annular space as defined in WAC 173-160-030(3). Water within the annular space may then flow into the borehole through screened, perforated, or open borehole sections of a well.

Wells screened, perforated or with open borehole sections in two aquifers are likely to act as a conduit for contamination.

XVII

A well drilled through the Wanapum Basalt, with screened, perforated, or open borehole in the Wanapum that is then further drilled into the Grande Ronde Basalt with screened, perforated, or open borehole in the Grande Ronde Basalt, are likely to allow movement of water between the Wanapum Basalt and the Grande Ronde Basalt.

XVIII

A well drilled through the Wanapum Basalt and into the Grande Ronde Basalt that is not sealed with cement grout to prevent groundwater movement within the annular space is likely to allow movement of water between the Wanapum Basalt and the Grande Ronde Basalt.

XIX

On December 5, 1990, the City of Moses Lake requested that the Department waive casing requirements between a screened section of well #14 that lies above the Vantage interbed and lower portions of the well.

XX

In the variance request, the City stated that "sealing the screened sections of well #14 above the Vantage Formation would not be required to safeguard shallow domestic water supplies in the basalt aquifer." The City further stated that the "higher potentiometric surface in Well #14 after deepening also indicates a potential upward movement of groundwater from the lower impermeable zone between 997 and 1020 feet to the upper screened zones even though the volume of water lost through the screened zones above the Vantage is extremely small according to the pumping test data."

XXI

No evidence was submitted by the City to show that compliance with WAC 173-160-020 was impractical, and no evidence was submitted by the City to show a comparable alternative to the specifications required under WAC 173-160.

XXII

Well #14 as constructed is drilled to a depth of 1025 feet below ground surface level, and is sealed with cement grout from ground surface to 20 feet below ground surface; from 51 feet below ground surface to 413 feet below ground surface; and from 442 feet below ground surface to 472 feet below ground surface. All other sections of Well #14 are not sealed.

As constructed, Well #14 has screens installed from 520 feet below ground surface to 540 feet below ground surface; from 596 feet below ground surface to 636 feet below ground surface; and from 648 feet below ground surface to 728 feet below ground surface. Well #14 is an open borehole from 746 feet below ground surface to 1025 feet below ground surface.

The well is screened in the Wanapum Basalt, and is screened and open borehole in the Grande Ronde Basalt.

The Vantage interbed is located from 635 feet below ground surface to 648 feet below ground surface.

XXIII

As constructed, the well does not prevent movement of water within the annular space between the Wanapum Basalts and the Grande Ronde Basalts, and does allow both upward and downward movement of water between the Wanapum Basalts and the Grande Ronde Basalts.

Groundwater within the Moses Lake vicinity naturally flows in a southwesterly direction, but the aggregate pumping of all of the wells in the Moses Lake vicinity could change the naturally southwesterly flow of the ground water.

XXIV

Trichloroethene (TCE) contamination is present within the vicinity. The exact point sources of contamination are unknown. The exact number and location of the contamination plume or plumes are unknown.

TCE can exist in the aquifer as a Dense Non-Aqueous Phase Liquid (DNAPL). TCE is more dense than water and will sink in the aquifer until it reaches a relatively impermeable layer where it can pool up and slowly disperse into an aquifer.

XXV

As constructed, Well #14 might act as a conduit for the TCE contamination in the area, allowing it to travel from the Wanapum Basalts to the Grande Ronde Basalts.

XXVI

Any Conclusion of Law which is deemed a Finding of Fact is hereby adopted as such.

From these Findings of Fact the Board comes to these

CONCLUSIONS OF LAW

I

The Board has jurisdiction over these persons and this matter. Chapters 18.104 and 43.21B. RCW.

II

Under the terms of RCW 18.104.040 the Department has certain powers and duties, among which are:

> (4) To make such rules and regulations governing licensing hereunder and water well construction as may be appropriate to carry out the purposes of this chapter. Without limiting the generality of the foregoing, the department may in cooperation with the department of

social and health services make rules and regulations regarding:

(a) Standards for the construction and maintenance of water wells and their casings;

(b) Methods of sealing artesian wells and water wells to be abandoned or which may contaminate other water resources;

(c) Methods of artificial recharge of ground water bodies and of construction of wells which insure separation of individual water bearing formations.

(d) The manner of conducting and the content of examinations required to be taken by applicants for license hereunder;

(e) Reporting requirements of water well contractors;

(f) Limitations on water well construction in areas identified by the department as requiring intensive control of withdrawals in the interests of sound management of the ground water resource.

III

Pursuant to the above statutory authority, the Department promulgated WAC 173-160. WAC 173-160-020 provides in part:

(2) When strict compliance with these regulations is impractical, the well contractor or driller shall make application to the department for approval of comparable alternative specifications (a variance) prior to the work being done. The department shall authorize or deny a variance request within fourteen days of receipt of a written request. In an emergency, a public health emergency, or in exceptional instances, the department will allow verbal notification to the appropriate regional office, with a written request follow-up.

IV

This case is an appeal of the City of Moses Lake's request for a variance of the casing requirements found in WAC 173-160. As such, the City has the burden of proof to establish that the Department's denial was in error.

V

The City of Moses Lake has failed to meet its burden of proof that compliance with the specifications is impractical and has failed to offer alternative specifications to the Department. (See Finding of Fact XXI.)

VI

The Department is prohibited from granting a variance that would abrogate a substantive provision of the laws of the State of Washington. The granting of a variance that would allow interaquifer transfer or the impairment of water quality would be an abrogation of a substantive provision of the laws of the State of Washington.

VII

Well #14, as constructed, does not preserve the natural barriers to ground water movement and therefore allows interaquifer transfers in abrogation of WAC 173-160-075.

VIII

Well #14, as constructed, might act as a conduit for contamination which might impair water quality in abrogation of WAC 173-160-075.

IX

Any Finding of Fact which is deemed a Conclusion of Law is hereby adopted as such.

From these Conclusions of Law, the Board enters this

ORDER

The Department's denial of the City of Moses Lake's request for a variance from casing requirements for Well #14 is AFFIRMED

DATED this 10th day of June, 1992.

POLLUTION CONTROL HEARINGS BOARD

Annette S. McGee

ANNETTE S. McGEE, Presiding

Judith A. Bendor

JUDITH A. BENDOR, Attorney Member

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